PLANNING AND SCHEDULING DIPLOMA

PLANNING AND SCHEDULING FUNDAMENTALS

By: Mohamed Zaher

PLANNING VS. SCHEDULING

- What is the difference between Planning and Scheduling?

  - Planning is the process of identifying all activities necessary to complete the project (thinking part).

  - Scheduling is the process of determining the sequential order of activities, assigning planned duration and determining the start and finish dates of each activity using the tools such as Primavera, MS Project, etc.

STEPS FOR PLANNING A PROJECT

1. Studying Contract Documents:

    1. General Conditions.
    2. Particular Conditions.
    3. General Specifications.
    4. Tender Drawings.
    5. Bill of Quantities (B.O.Q).
    6. Agreement.
    7. Addendums & Amendments.

AIA

STEPS FOR PLANNING A PROJECT

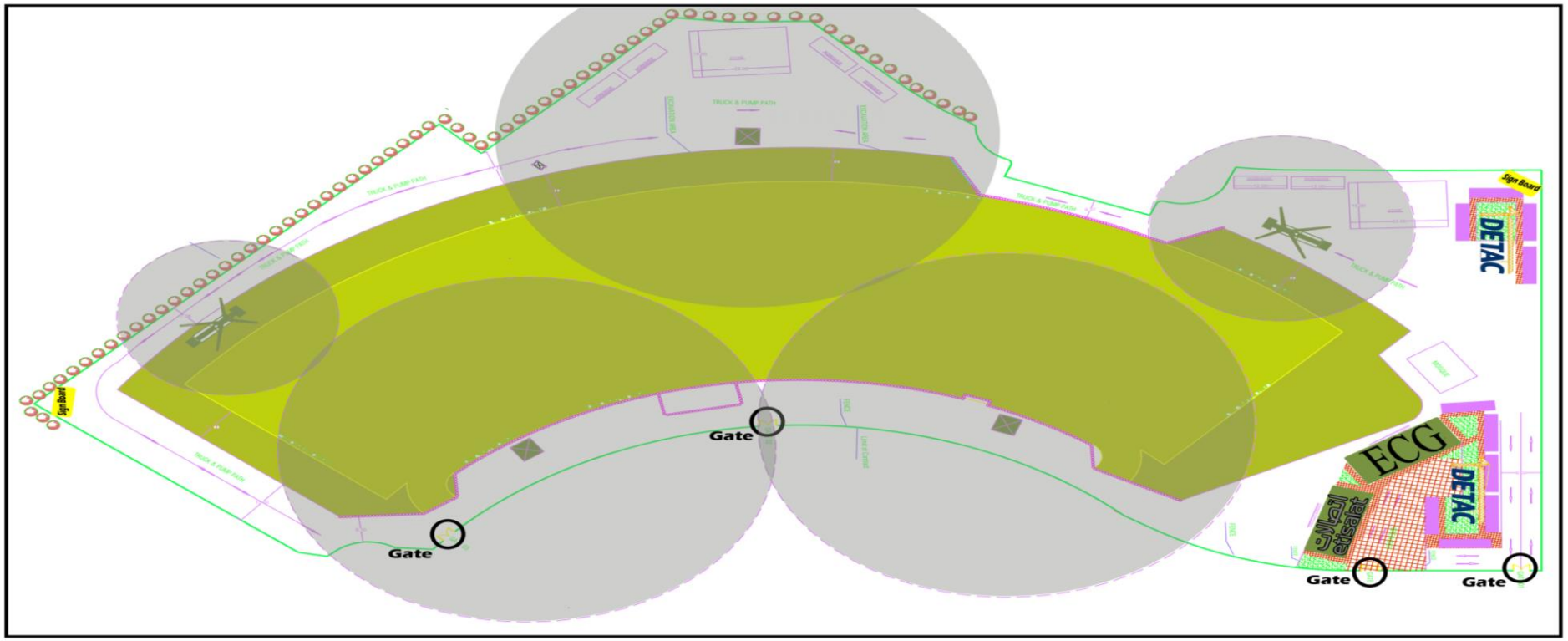
2. Prepare a Method Statement:

    1. Construction Phases/Zones
    2. Resources (Labors, Equipment, Materials, ….)
    3. Quality Control Plan
    4. Safety Plan.
    5. Organization Chart

3. Prepare a Project Layout (Mobilization Plan)

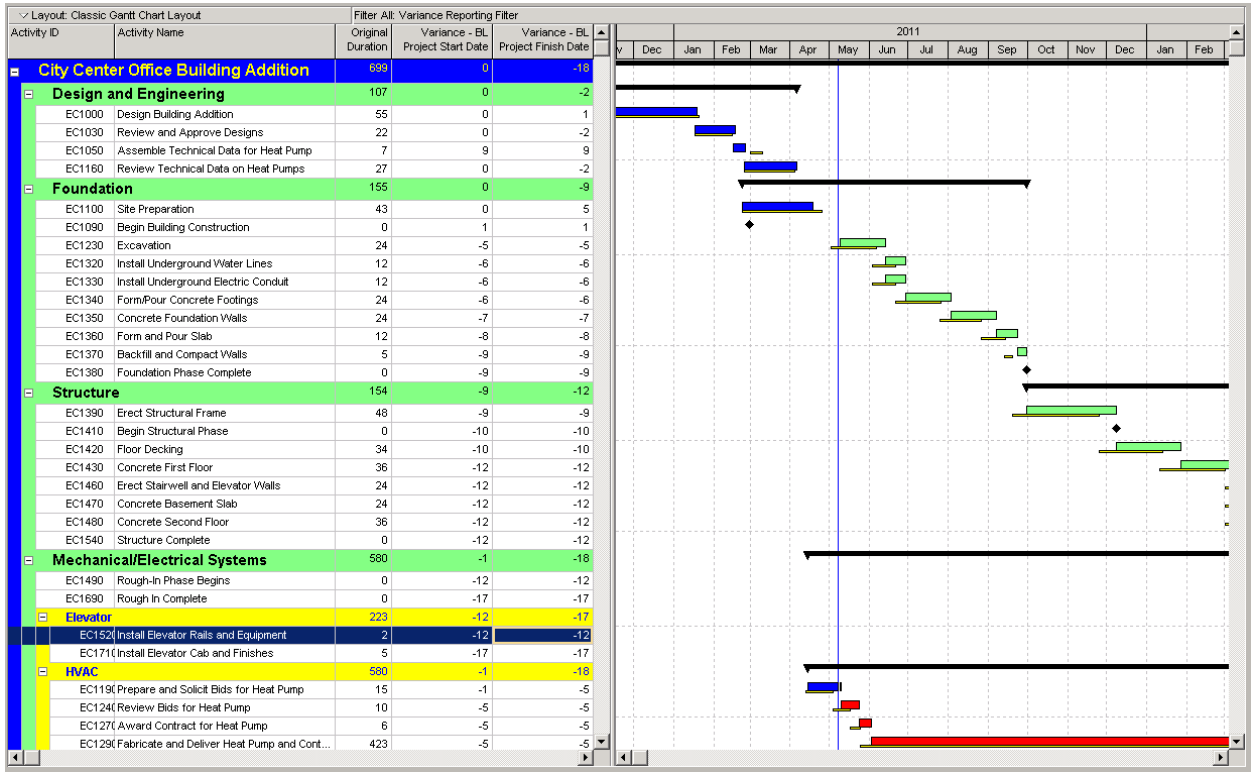
STEPS FOR PLANNING A PROJECT

The following example is for Etisalat Misr Headquarter in Smart Village, 2013.



STEPS FOR PLANNING A PROJECT

4. Prepare a Project Baseline.


Layout: Classic Gantt Chart Layout
Filter All: Variance Reporting Filter
Activity ID
Activity Name
Original Duration
Variance - BL Project Start Date
Variance - BL Project Finish Date
2011
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
City Center Office Building Addition 699 0 -18
Design and Engineering 107 0 -2
EC1000 Design Building Addition 55 0 1
EC1030 Review and Approve Designs 22 0 -2
EC1050 Assemble Technical Data for Heat Pump 7 9 9
EC1160 Review Technical Data on Heat Pumps 27 0 -2
Foundation 155 0 -9
EC1100 Site Preparation 43 0 5
EC1090 Begin Building Construction 0 1 1
EC1230 Excavation 24 -5 -5
EC1320 Install Underground Water Lines 12 -6 -6
EC1330 Install Underground Electric Conduit 12 -6 -6
EC1340 Form/Pour Concrete Footings 24 -6 -6
EC1350 Concrete Foundation Walls 24 -7 -7
EC1360 Form and Pour Slab 12 -8 -8
EC1370 Backfill and Compact Walls 5 -9 -9
EC1380 Foundation Phase Complete 0 -9 -9
Structure 154 -9 -12
EC1390 Erect Structural Frame 48 -9 -9
EC1410 Begin Structural Phase 0 -10 -10
EC1420 Floor Decking 34 -10 -10
EC1430 Concrete First Floor 36 -12 -12
EC1460 Erect Stairwell and Elevator Walls 24 -12 -12
EC1470 Concrete Basement Slab 24 -12 -12
EC1480 Concrete Second Floor 36 -12 -12
EC1540 Structure Complete 0 -12 -12
Mechanical/Electrical Systems 580 -1 -18
EC1490 Rough-In Phase Begins 0 -12 -12
EC1690 Rough In Complete 0 -17 -17
Elevator 223 -12 -17
EC152 Install Elevator Rails and Equipment 2 -12 -12
EC171 Install Elevator Cab and Finishes 5 -17 -17
HVAC 580 -1 -18
EC119 Prepare and Solicit Bids for Heat Pump 15 -1 -5
EC124 Review Bids for Heat Pump 10 -5 -5
EC127 Award Contract for Heat Pump 6 -5 -5
EC129 Fabricate and Deliver Heat Pump and Cont... 423 -5 -5

SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

- Bar or Gantt Charts.
- Program Evaluation and Review Technique (PERT).
- Line of Balance Method.
- Critical Path Method (CPM).
  - Arrow Diagramming Method (ADM), also known as Activity-on-Arrow (AOA).
  - Precedence Diagramming Method (PDM), also known as Activity-on-Node (AON).

SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

- Bar or Gantt Charts.

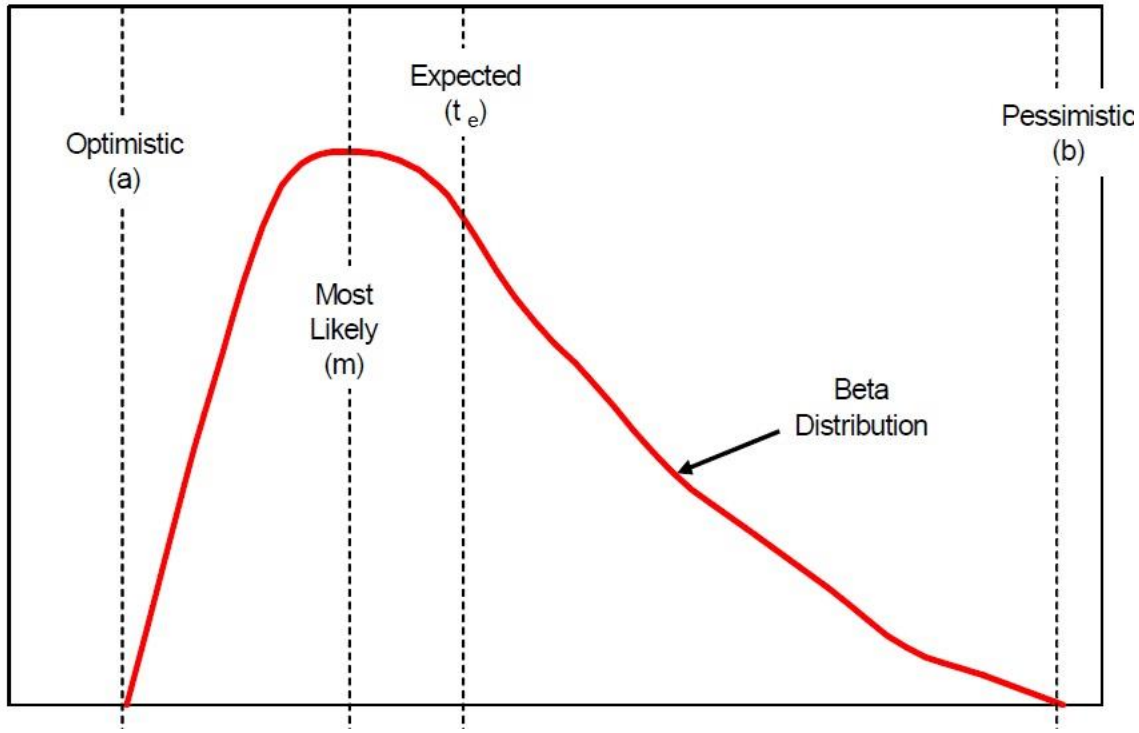
Activity/Week	Week no. 1	Week no. 2	Week no. 3	Week no. 4	Week no. 5
Activity A					
Activity B					
Activity C					
Activity D					
Activity E					

SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

- Program Evaluation and Review Technique (PERT).

- $Te = \frac{Tp+4Tm+To}{6}$

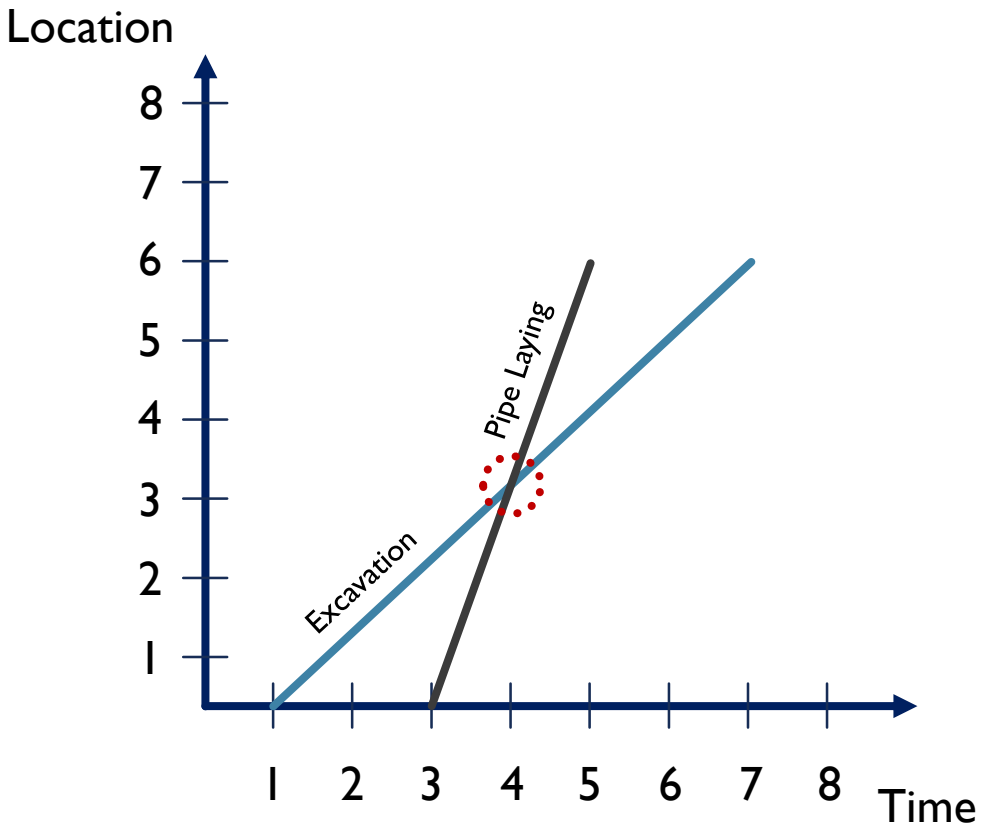
- Te = Estimate time
- To = Optimistic time
- Tm = Most probable time
- Tp = Pessimistic Time



SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

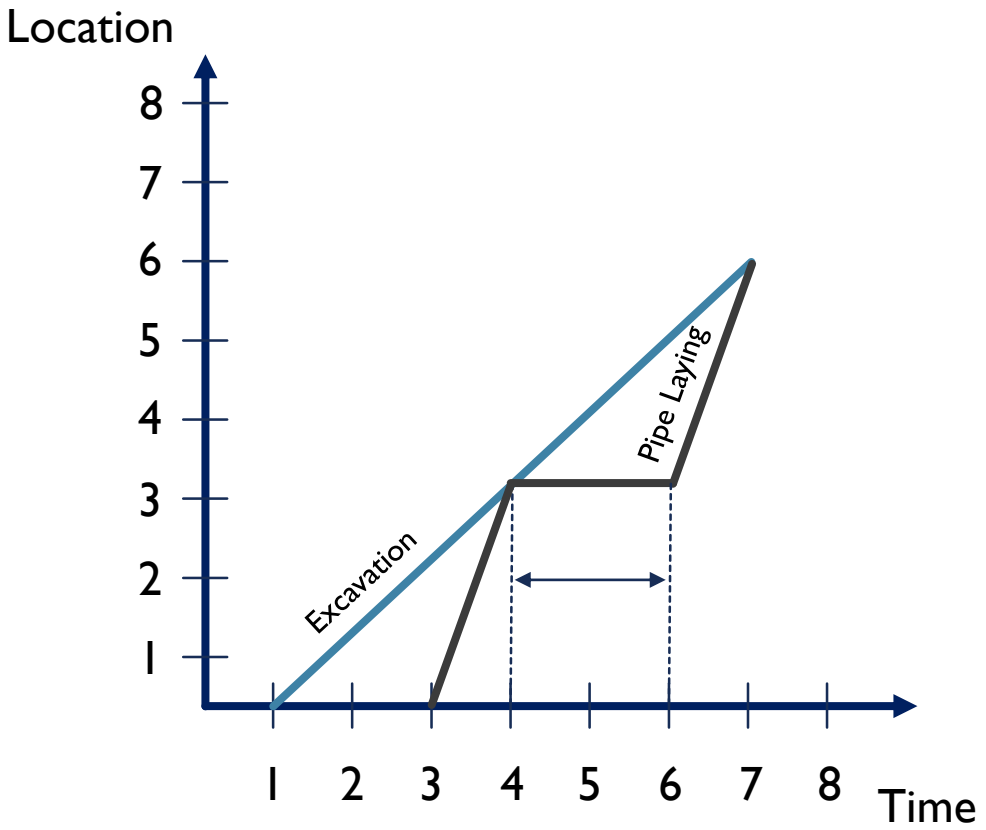
- Line of Balance Method.

- Interference



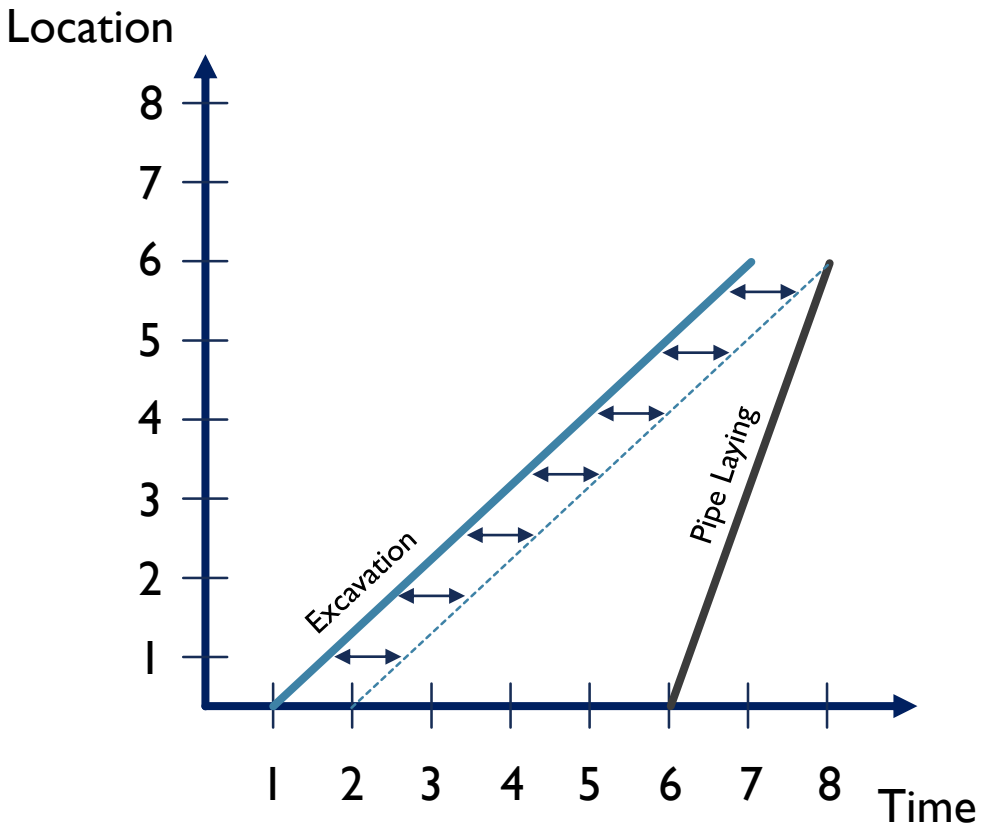
SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

- Line of Balance Method.
- Interruption



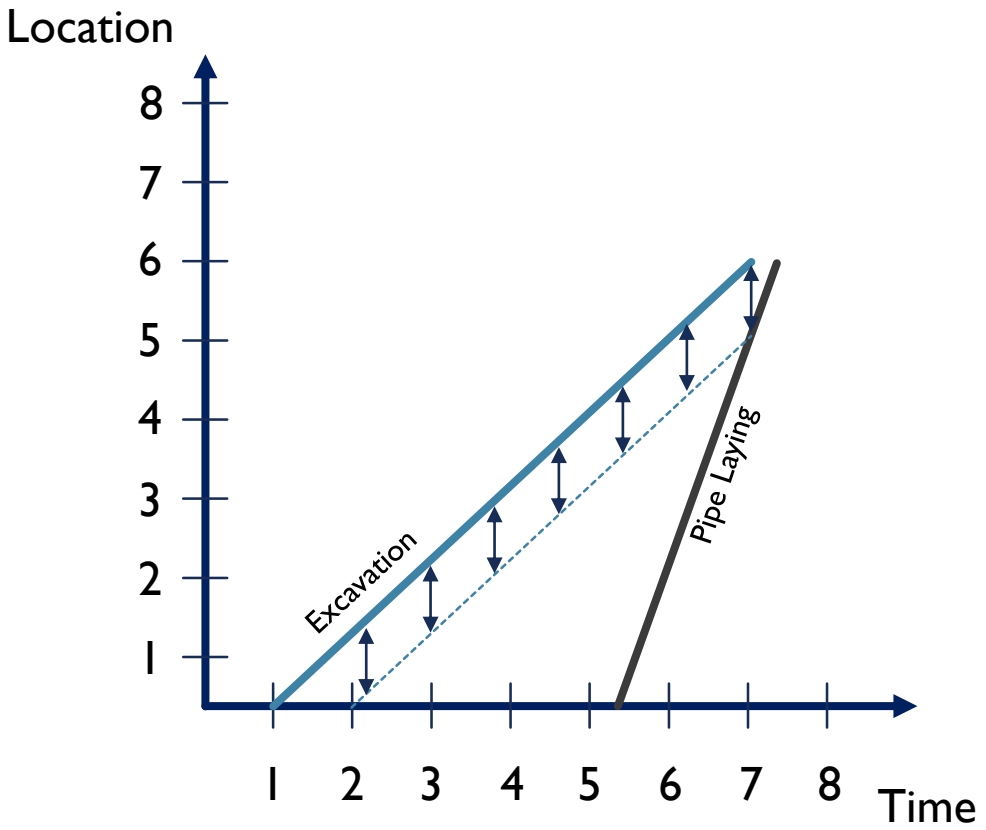
SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

- Line of Balance Method.
- Time Buffer



SCHEDULE DEVELOPMENT TOOLS AND TECHNIQUES

- Line of Balance Method.
- Distance Buffer



THANKS FOR WATCHING